

Monolithic Linear IC

SANYO

No.2667A

LA4538M

Ripple Filter-Provided Stereo Power Amp for 1.5V Headphone Stereos

Features

- Low current dissipation
- Excellent reduced voltage characteristics
- Minimum number of external parts required
- On-chip power switch function
- Power amp section
 - Output power 8mW typ ($V_{CC}=1.5V, R_L=16\Omega, f=1kHz, THD=10\%$)
 - Ripple rejection 46dB typ ($V_{CC}=1.0V, V_R=-30dBm, f_R=100Hz$)
 - On-chip muting function
- Ripple filter section
 - Ripple rejection 39dB typ ($V_{CC}=1.0V, V_R=-35dBm, f_R=100Hz$)
 - Less output voltage loss
 - Pin 8 can be used to perform the muting function.

Maximum Ratings at $T_a=25^\circ C$

Maximum Supply Voltage	V_{CC} max	Quiescent	4.5	V
Maximum Output Current	I_{O7}	Pin 7 flow-out current	5.0	mA
Allowable Power Dissipation	P_d max		300	mW
Operating Temperature	T_{opr}		-20 to +75	$^\circ C$
Storage Temperature	T_{stg}		-40 to +125	$^\circ C$

Operating Conditions at $T_a=25^\circ C$

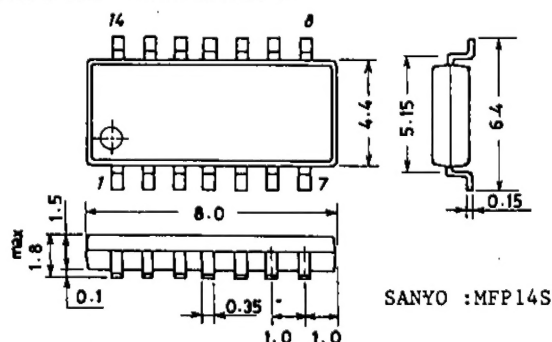
Recommended Operating Voltage	V_{CC}	1.5	V
Operating Voltage Range	V_{CC} op	0.9 to 4.0	V
Recommended Load Resistance	R_L	16 to 32	Ω

Operating Characteristics at $T_a=25^\circ C, R_L=16\Omega, R_g=600\Omega$, See specified Test Circuit.

			min	typ	max	unit
Quiescent Current	$I_{CCO(1)}$	$V_{CC}=1.20V, \text{quiescent}, R_{L3} \rightarrow \text{OFF}$		4.5	7.0	mA
	$I_{CCO(2)}$	$V_{CC}=2.50V, \text{pin } 14 \rightarrow \text{GND}, R_{L3} \rightarrow \text{OFF}$		1.5	2.5	mA
	$I_{CCO(3)}$	$V_{CC}=2.50V, \text{pin } 1 \rightarrow \text{GND}, R_{L3} \rightarrow \text{OFF}$			1.0	μA
Voltage Gain	VG	$V_{CC}=0.90V, f=1kHz, V_o=-20dBm$	27.5	29	31.5	dB
Voltage Gain Difference	ΔVG	$V_{CC}=0.90V, f=1kHz, V_o=-20dBm$			1.0	dB
Total Harmonic Distortion	THD	$V_{CC}=1.20V, f=1kHz, P_o=0.5mW$		0.9	1.5	%
Output Power	P_o	$V_{CC}=1.50V, f=1kHz, THD=10\%$	5	8		mW

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Package Dimensions 3111-M14SIC (unit: mm)



SANYO Electric Co., Ltd. Semiconductor Business Headquarters
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110 JAPAN

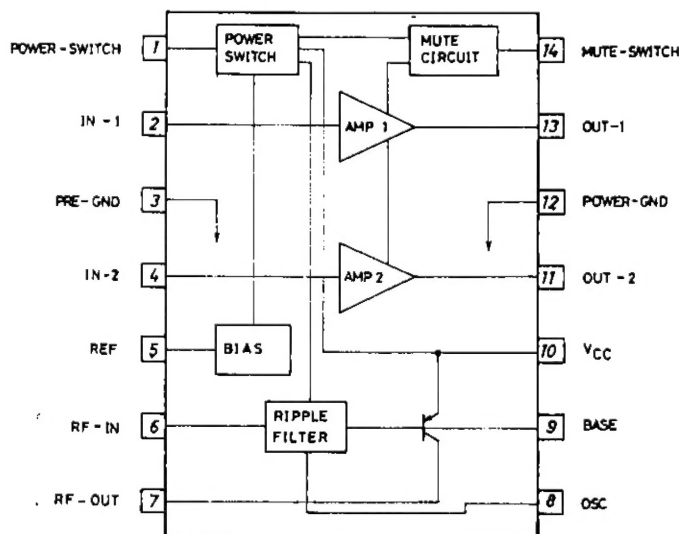
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LA4538M

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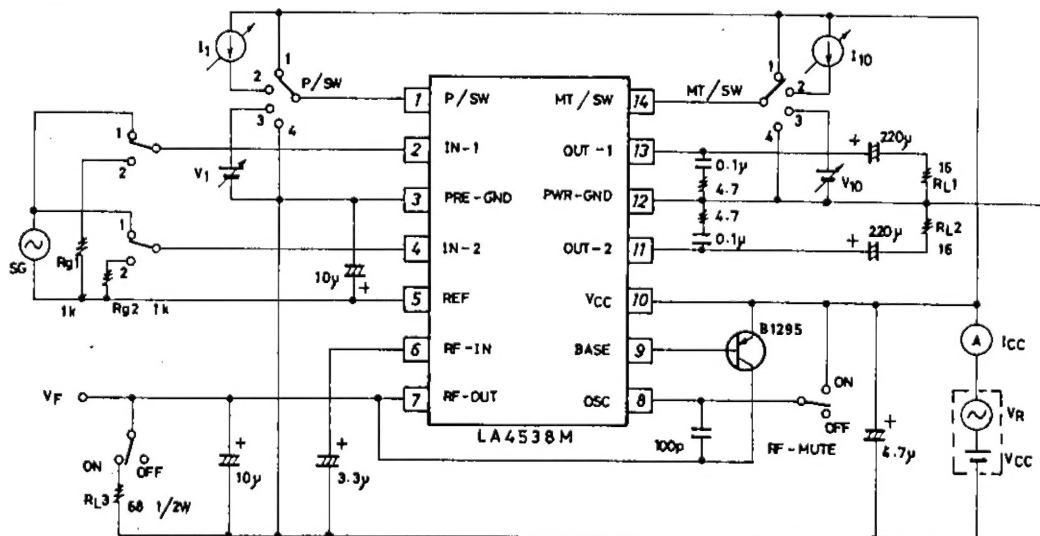
			min	typ	max	unit
Crosstalk	CT	$V_{CC}=1.20V, f=100Hz, R_g=1k\Omega, V_o=-20dBm$	40	45		dB
Ripple Rejection (Amp Section)	SVRR(1)	$V_{CC}=1.00V, f=100Hz, R_g=1k\Omega, V_R=-30dBm, BPF=100Hz$	40	46		dB
Ripple Rejection (Filter Section)	SVRR(2)	$V_{CC}=1.00V, f=100Hz, V_R=-35dBm$	34	39		dB
Output Noise Voltage	V_{NO}	$V_{CC}=2.50V, R_g=1k\Omega, BPF=20Hz$ to 20kHz		55	80	μV
Power ON-State Current Sensitivity	$I_{1(ON)}$	$V_{CC}=0.85V, V_{pin5} \geq 0.5V$		0.1	1.0	μA
Power OFF-State Voltage Sensitivity	$V_{1(OFF)}$	$V_{CC}=0.85V, V_{pin5} \leq 0.1V$	0.5	0.6		V
Muting ON-State Current Sensitivity	$I_{14(ON)}$	$V_{CC}=0.85V, V_{pin5} \geq 0.5V$		0.1	1.0	μA
Muting OFF-State Voltage Sensitivity	$V_{14(OFF)}$	$V_{CC}=0.85V, V_{pin5} \leq 0.1V$	0.5	0.6		V
Ripple Filter Output Voltage	V_F	$V_{CC}=1.00V, R_L=68\Omega$	0.90	0.94		V

Equivalent Circuit Block Diagram

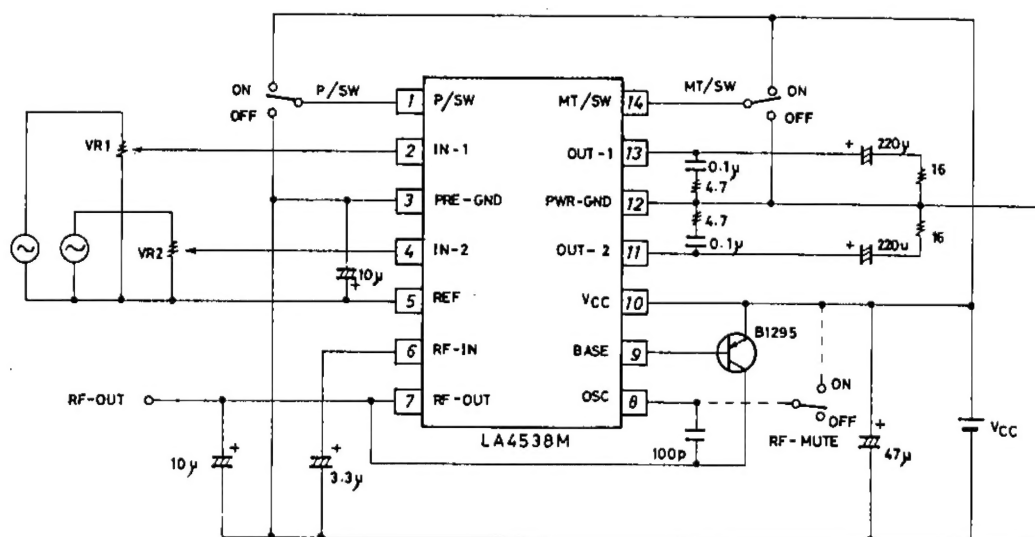


Test Circuit

Unit (resistance: Ω , capacitance: F)



Sample Application Circuit

Unit (resistance: Ω , capacitance: F)

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